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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,503	03/27/2005	Mohamed Yahia Benslimand	6495-0096WOUS	5038

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EXAMINER
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DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
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2834

MAIL DATE	DELIVERY MODE
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06/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/528,503

Applicant(s)

BENSLIMAND ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 10, 16, 17 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 9, 11-13, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 305, 1206.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 16, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Toda (US 5,321,332). Toda shows (figs. 1D, 1E, 3B) an actuator comprising: a tubular portion (40) extending in a longitudinal direction (into the paper), the tubular portion (40) comprising a body of an elastomeric material (materials noted at col. 7, lines 13-17) arranged between two electrodes (20 is between 24 and 26, 22 is between 26 and 28, similar to the arrangement of the Applicants' figure 5), wherein any line of symmetry extending between two opposite points on a periphery in a cross-section perpendicular to the longitudinal direction has a length which is different from any other such line of symmetry.

The tubular portion (40) is formed by rolling up a sheet comprising at least two elements (20 and 22) each comprising a body of an elastomeric material (as noted above) and an electrode (as noted) attached to a first surface thereof, wherein deformation of the body is restricted in a first direction and supported in a another,

second, direction. See figures 1D and 1E which shows that expansion direction depends on the applied potential difference. Note that the elastic actuator has a length and elastically deforms in the lengthwise direction either by shrinkage or expansion.

The second direction is parallel to the longitudinal direction.

The first direction is substantially perpendicular to the second direction.

Toda shows (figs. 1D, 1E, 3B) actuator comprising: an elastomeric material (as noted above) arranged between two electrodes (24, 26, 28) forming a tubular portion (into the paper) extending in a longitudinal direction and having a cross-section, wherein the cross-section of the tubular portion is asymmetrical.

The tubular portion (40) is formed by multiple layers of elastomeric material (20,22) and electrode (24, 26, 28).

Claims 1 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Takasaki (JP 55-42474). Takasaki shows (fig. 3) an actuator comprising: a tubular portion (1) extending in a longitudinal direction, the tubular portion (1) comprising a body of an elastomeric material (see title) arranged between two electrodes (2', 3'), wherein any line of symmetry extending between two opposite points on a periphery in a cross-section perpendicular to the longitudinal direction has a length which is different from any other such line of symmetry.

Takasaki show (fig. 3) actuator comprising: an elastomeric material (as noted above) arranged between two electrodes (2', 3') forming a tubular portion extending in a longitudinal direction and having a cross-section, wherein the cross-section of the tubular portion is asymmetrical.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takasaki (JP 55-42474). Takasaki further shows the tubular portion is formed by rolling of the sheet (1) around a core (5). It is unknown whether or not the core is of an elastomeric material.

It would have been obvious to one having ordinary skill in the art to employ an elastomeric material for the core material of Takasaki at the time of his invention since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125, USPQ 416.

Claims 5 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toda (US 5,321,332) in view of Kawasaki (JP 55-91299). Given the invention of Toda as noted above, he does not show any corrugations extending in the first direction. They do not show at least one corrugated surface that is molded or electrodes deposited on the corrugated surface which correspond to the corrugations of the corrugated surface of the elastomeric material.

Kawasaki shows (fig. 4) the body (11") and the electrode (12") comprise corrugations.

At least one surface is corrugated.

They don't note how the device is made. The device is piezoelectric, which description includes electroactive elastomers.

It would have been obvious to one having ordinary skill in the art to employ the corrugations of Kawasaki in the device of Toda at the time of that invention since this allows for significant bending when the device is actuated.

Recitation of how the device is made does not carry patentable weight at this time since it does not implicitly describe an additional structural feature of the invention. Additionally the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

***Allowable Subject Matter***

Claims 6-9, 12,13, 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional prior art cited reads on at least some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

*hmd*  
tmd

May 25, 2007

*Thomas M. Dougherty*  
TOM DOUGHERTY  
PRIMARY EXAMINER